

## Erection Procedure

### Assembly of trussed rafter roofs

#### *(Information relating to the assembly of trussed rafter components and infill)*

Once the trussed rafters have been safely raised to eaves level utilising either the methods or principles outlined previously and assuming that all the necessary information has been forwarded by the Roof Designer to the contractor, then it is possible for the assembly of the trussed rafter roof construction to commence. In similar fashion to the other work tasks associated with trussed rafter roof construction, the assembly of the roof components should be carried out in strict accordance with a contractor prepared safe working method statement (*see section 3.13 for a typical example of a Contractors General Risk Assessment and supporting Method Statement*).

Whichever method of raising the trusses is utilised, the principal risks associated with assembling trussed rafter roofs in their final location are either falling, temporary instability and collapse of the partially complete structure or being struck by a falling truss/object. All of these issues need to be addressed to safely proceed with the operation. The manner in which any other residual site hazards should be dealt with should be based on the principle of a hierarchy of risk control. This principle states that the most desirable option is to design out the hazard and subsequent risk completely at the design stage and the least desirable option is to provide personal protection systems such as restraint harnesses (i.e. protection after a fall).

With regard to assembling trussed rafter roof structures, the most desirable approach for standard storey height construction (up to 3.0m from floor to ceiling) is to provide both a perimeter working platform externally and either a full or partial working platform internally and erecting the trusses using the standard erection procedure as shown in figure 94a. A useful modification to the basic bracing procedure is to rigidly brace the first truss back to the external scaffold to allow roof assembly to proceed unencumbered in a direction away from that first truss.

Alternatives to this approach might involve the combination use of working platforms and safety nets or, in situations where the potential fall distances are sufficient to allow their safe use, the installation of larger nets and/or restraint harnesses.

At all times, the Designers and Contractors should undertake proper Risk Assessments of the tasks in hand and draft appropriate method statements accordingly. Where the trussed rafter

designer/manufacture is also engaged to erect the roof structure then the method statement would be prepared by him and approved by the principal Contractor (who is responsible for the Health and Safety of all personnel, directly employed or otherwise, on the site). Some amendment or reassessment of the proposed working method may be necessary before the Principal Contractor allows the work to commence.

### Erection Procedure

The builder should consider, in conjunction with the Building Designer, the erection procedures to be used and the provision of temporary bracing, rigging and any other specialised equipment required to erect the trusses safely and without damage, in accordance with the design requirements and having due regard to possible windy conditions.

Permanent bracing should be of minimum size 22 x 97mm free of major defects and fixed with two 3.35 x 65mm galvanised round wire nails at each cross-over.

The following procedure is suggested for most domestic size roofs.

1. - Mark the position of each truss along both wallplates.
2. - Erect the first truss (truss A in figure 94a) at the point which will coincide with the uppermost point of the diagonal brace F when it is installed later. Use the temporary raking braces B fixed to the rafter members and the wallplates to hold this truss in the correct position, straight and vertical. For clarity, only one raking brace is shown in the figure but they should be fixed to both rafter members and be of

sufficient length to maintain the truss in position, during the erection of the remaining trusses.

3. - Erect truss C and brace back to A with temporary battens D at suitable intervals along the rafter and ceiling tie members. Repeat this procedure until the last truss E is erected.
4. - Fix the permanent diagonal braces F ensuring that each top end is as high up the last trussed rafter A as is possible and that each bottom-end extends over the wallplate to which it should be fixed. For clarity, only one permanent brace is shown in the figure, but they should be installed on both sides of the roof.
5. - Fix the longitudinal members G, making sure that the ceiling ties are accurately spaced at the correct centres.
6. - Fix all remaining longitudinal, diagonal and chevron bracing required on the internal members of the trusses as specified.
7. - Additional trusses may be erected by temporarily 'bracing-off' the completed end.

Figure 94a

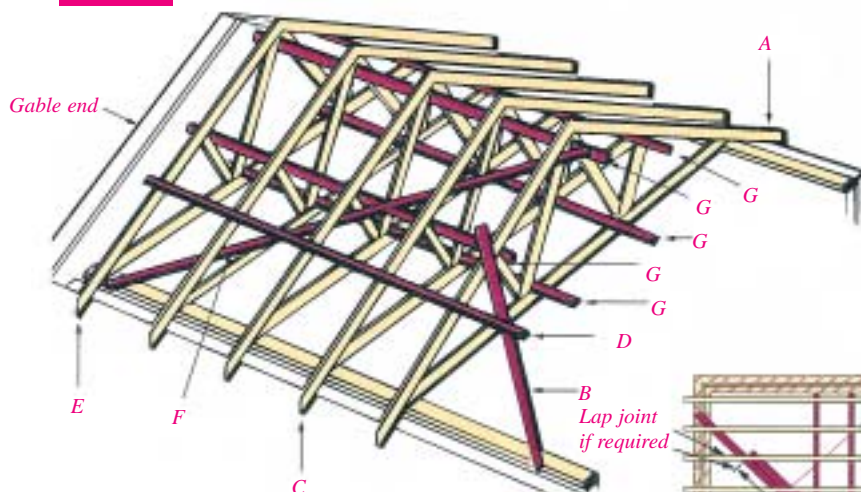
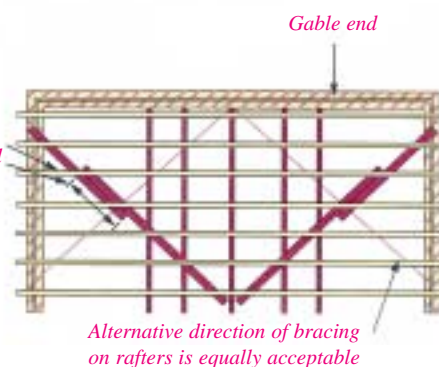


Figure 94b



Immediately prior to the fixing of the permanent bracing and the tiling battens or sarking, all trussed rafters should be checked for straightness and vertical alignment. Whilst every effort should be made to erect trusses as near vertical as possible, the maximum deviations from the vertical shown in the following table may be permitted.

#### Maximum deviation from vertical

Rise of truss (m)	1	2	3	4 or more
Deviation from vertical (mm)	10	15	20	25

After erection, a maximum bow of 10mm may be permitted in any trussed rafter provided that it is adequately secured in the complete roof to prevent the bow from increasing. For rafter members, this maximum bow is measured from a line between the apex and the eaves joint.